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AUTHOR	Wellman, Jane
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ABSTRACT

This report reviews two decades of trends in college tuition, the effects on student access and college choice, and how governments and institutions have responded. Among major findings are: (1) overall, average tuition and fees have increased almost five-fold over the last two decades; (2) a major cause of higher prices has been the declining role of public revenues; (3) access to college is being maintained despite higher prices; (4) the enrollment response to higher prices has included shifts toward community colleges by low-income students and away from community colleges by middle- and upper-income students; (5) spending on instruction has not kept pace with spending in other categories; and (6) federal and state policymakers have focused on increasing the number of financial options to help students meet the higher prices. Four recommendations for states include rewriting state budget practices and ensuring that tuition policies are realistic and mutually reinforcing. Five recommendations for institutions include changing the role of tuition revenue in institutional planning and budgeting. Following an introduction, individual sections of the report examine how college prices have increased, the causes of higher prices, consequences for student access and choice, responses to higher prices, and recommendations for institutions and states. (Contains 41 references.) (DB)

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The New Millennium Project on
Higher Education Costs, Pricing, and Productivity

THE TUITION PUZZLE

Putting the Pieces Together

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The New Millennium Project on Higher Education Costs, Pricing, and Productivity

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Putting the Pieces Together

FEBRUARY 1999

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For further information, please contact:
THE INSTITUTE for Higher Education Policy
1320 19th Street, NW, Suite 400 Washington, DC 20036
Phone: 202-861-8223/ Facsimile: 202-861-9307/ Internet: www.ihep.com

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Preface

This report is one in a series published under the aegis of The Institute for Higher Education Policy's *New Millennium Project on Higher Education Costs, Pricing, and Productivity*. Sponsored by The Institute for Higher Education Policy, The Ford Foundation, and The Education Resources Institute (TERI), the project is a multi-year effort to improve understanding and facilitate reform of the complex system for financing higher education.

The report was drafted by Jane Wellman, with primary analytic support and guidance provided by Katheryn Volle Harrison, Alisa Federico Cunningham, Colleen O'Brien, and Jamie Merisotis. We would like to thank the members of the project Advisory Group who provided excellent feedback and advice on earlier drafts of the report. We also would like to express our appreciation to the many other colleagues who provided comments and ideas for the report, including Robert Atwell, Judith Eaton, T. Edward Hollander, Andrew Malizio, and David Rhodes. Special thanks to our colleagues at The Ford Foundation for their ongoing encouragement and support for our work in this area, especially Jorge Balan, Alison Bernstein, and Steven Zwerling. We heartily acknowledge the contributions of these individuals to this report and recognize that they are not responsible for any errors of omission or interpretation contained herein.

The *New Millennium Project* team is co-directed by Jamie Merisotis, President, and Jane Wellman, Senior Associate, at The Institute for Higher Education Policy. Project staff include: Colleen O'Brien, Managing Director; Diane Gilleland, Senior Associate; Thomas Parker, President of TERI; Katheryn Volle Harrison and Alisa Federico Cunningham, Research Analysts; and Christina Redmond and Mark Harvey, Project Assistants.

The project also is being guided by an Advisory Group of national experts in higher education. Advisory Group members include:

- Vera King Farris, President, Richard Stockton State College;
- Augustine Gallego, President, San Diego Community College District;
- D. Bruce Johnstone, Professor of Higher Education, SUNY Buffalo;
- Gerald Monette, President, Turtle Mountain Community College;
- Barry Munitz, President and CEO, The J. Paul Getty Trust, *Chair*;
- Michael A. Olivas, William B. Bates Professor of Law, University of Houston; and
- Carol Stoel, Co-Director, Teacher Education, Council for Basic Education.

EXECUTIVE SUMMARY

The dilemma of rising college prices is one of the most troubling aspects of higher education policy. How and why have prices gone up? Has financial aid kept college affordable despite the rising prices? Is there a "problem" with tuition, and if so, is it mostly a public relations problem, or have rising prices hurt the capacity of higher education to maintain affordable educational access, institutional choice, and quality? Despite stacks of reports on the topic, the different pieces of the tuition puzzle have not been fit together.

This report ties together data and information from numerous sources in order to help identify the pieces of the tuition puzzle in higher education. The goal of the report is to provide new insights into the causes and consequences of rising college prices, and to question whether rising prices are inevitable, or if something can be done about them. The report includes a summary of what has happened with college tuition increases in the last two decades, what has caused the increases, what they have meant for student access and college choice, and how governments and institutions have responded to these increases. It concludes with a synthesis of the consequences of the overall tuition puzzle, recommendations for change in tuition policies—both at the institutional and the state policy level—and suggestions for further research.

The research summarized in the report shows the following:

- Overall, average tuition and fees increased almost fivefold over the last two decades, or nearly doubled after adjusting for inflation. The significant investment in student financial aid has helped to ease, but not erase, the consequences of higher prices.

- One of the most significant causes of higher prices has been the declining role of public revenues, which are partially offset through higher prices. The revenue problem is compounded by institutional spending habits, particularly increased support for student aid as well as for research and other activities. Competition in the higher education market has contributed to price increases in selective institutions, rather than stabilizing or decreasing prices, as would be expected.

- Access to college, as measured by the proportion of people going to college, is being maintained despite the higher prices, though gaps between low- and high-income students remain a serious concern. When the higher prices are compared to the economic costs of not going to college, clearly the costs of not going outweigh the price of attendance, even at the higher tuition levels. But if earnings alone are the measure of the worth of the additional investment required for a bachelor's degree, the benefit has not increased nearly as much as the price; incomes for baccalaureate degree holders have remained steady.

- There has been an enrollment response to the higher prices, with incremental shifts away from community colleges by middle- and upper-income students and toward research institutions by the richest students. Low-income students—who are more "price responsive"—have largely remained concentrated in public two- and four-year institutions. The enrollment shifts mean that higher education is at risk of becoming more economically stratified by sector at the end of the 1990s than any time in the previous two decades.

- Because of the necessity to find cost savings, spending on instruction in most types of institutions has not kept pace with spending in other categories, notably research and public service. At the same time, institutions are becoming more entrepreneurial in finding new revenue sources, not just from tuitions but from private and philanthropic sources. The combination of cuts and new revenue sources means a more fragmented revenue base, with less institutional activity directly associated with instruction.

- Much of the response to rising prices from both federal and state policymakers has been focused on efforts to increase financial options to help students meet the higher prices, and to improve public information about college prices. Neither of these responses are intended to actually reduce the price of college.

- Despite the higher prices, there has not been a systematic restructuring of tuition price structures as part of the public policy response. The pretense that college tuitions should be kept as low as possible is main-

tained in policies and political habits that thwart efforts to restructure prices and manage costs.

- State and federal policymakers have been active co-contributors (along with institutional leaders) to the increase in college tuitions, because they believe that higher education can afford to make up cuts in public revenues through increased tuitions and more financial aid. Unless different budget rules are developed, the game of tuition "chicken" that is ritualistically played across the country is likely to continue.

The report concludes that it is not inevitable that tuitions must continue to increase as they have in the past. Pricing and aid structures and budgetary policies can be adopted that moderate the rate of increases and protect access, choice, and quality. Solving the tuition puzzle requires multi-pronged strategies that address both the internal habits of the academy and the external political culture surrounding it.

Recommendations for States

The single pressure point most likely to be helpful in addressing rising prices is changed tuition policies at the state level, which are designed to address both the internal practices of higher education and the state political and budget environment in which tuition decisions are made. Specific suggestions include:

- State budget practices and tuition policies need to be rewritten, to be realistic and mutually reinforcing. In states where tuitions are increasing rapidly but are still characterized by policymakers as low, this pretense should be scrapped in favor of realistic price structures that permit moderate increases but keep college affordable. Policies should be set so that tuitions increase at rates no greater than per capita personal income annually.

- State policy leaders should examine the match between public subsidies and private resources across all of higher education to ensure that state funds are being spent consistently with public priorities. Evidence about how resources are spent by revenue source and budget category should be developed for all public institutions, and for state-supported student aid at private institutions.

- The role of financial aid in maintaining economic access to higher education should be protected through a reevaluation and (if necessary) a realignment of state aid programs, including policies about funding sources for institutional aid in the public sector.

- State policy leaders should set the goal that higher education's share of general revenues will not continue to decline, unless there is evidence that the continued investment in higher education is no longer a priority.

Recommendations for Institutions

Institutions of higher education, both public and private, must take steps to address rising tuitions and restore public and policymaker confidence. Specific suggestions to accomplish these objectives include:

- The role of tuition revenue in institutional planning and budgeting must be changed. Rather than building the budgets by first developing resource needs for access and quality, and then generating revenue to match, institutions should move away from cost-plus pricing to value-based pricing. Tuition limits should be set first, and then plans for raising revenue from other sources and for institutional needs should follow.

- Price structures should be reviewed and, if necessary, realigned. Greater differentiation among prices by level of instruction and program should be permitted. Higher tuitions at the graduate and professional levels, in particular, should be encouraged, and/or costs for these programs reduced, to protect public support for undergraduate education.

- Instruction should be protected at the same time that costs are cut and productivity increased. Attention to the quality of teaching and learning must be maintained as a priority. Analyses and action plans should be undertaken to ensure that lower rates of growth in spending for instruction relative to other spending categories do not contribute to lower quality or effectiveness. Plans for cost savings in some areas should be accompanied by plans to reinvest in other priorities.

- Academic and program planning must be integrated with long-term resource planning, and not maintained as essentially separate efforts within the institutions.

Institutions need to develop realistic projections of long-term enrollments matched to scenarios of what can be accomplished at different revenue levels, and then make difficult decisions about focus, program, and priority. Faculty need to be better informed about the costs of programs, and the consequences of choices about future priorities.

- Institutions must take responsibility for strengthening their capacity to define the terms of public accountability that they are prepared to meet.

I. INTRODUCTION

The dilemma of rising college prices is one of the most troubling aspects of higher education policy. How and why have prices gone up? Has financial aid kept college affordable despite the rising prices? Is there a "problem" with tuition, and if so, is it mostly a public relations problem, or have rising prices hurt the capacity of higher education to maintain affordable educational access, institutional choice, and quality? Despite stacks of reports on the topic, the different pieces of the tuition puzzle have not been fit together.

Part of the difficulty in answering these questions is that they are complicated, since higher education is a complex industry. Some of the public policy debate about college prices is obsessed with quibbling about technical details, in search of analytical precision. Further, the answers to these questions are slightly different for the various sectors of higher education—public, private, two-year, and four-year. Generalizations that might be accurate from a national perspective also can be misleading about particular institutions or particular states. But al-

Definitions of Terms

The language that is typically used to analyze student tuitions, financial aid, and college finances unfortunately blurs the words "price" and "cost" in such a way as to confuse most readers and analysts. For instance, "cost" can alternatively mean tuition only, or tuition and living expenses, or per-student expenditures by institutions. To avoid some of these confusions, we propose to use the term *price* to mean the amount charged to or paid by the consumer, and *cost* to refer to money spent by the institution to provide education, as well as other education-related services. Price, therefore, includes tuition, fees, room and board, books and supplies, and other living expenses, even though some analysts exclude room and board and living expenses from the definition of college prices. We believe this terminology is preferable, because the price is what consumers of higher education have to meet to pay for college. In addition, to keep the discussion as uncluttered as possible, the unit of analysis in this report is usually full-time, full-year undergraduate students. Other terms that are used include:

Total price - Tuition, fees, room and board, books and supplies, and other living expenses (financial aid is not taken into consideration).

Sticker price - Tuition and fees charged by institutions to students (financial aid is not taken into consideration).

Net price (grants) - Total price minus grant aid received by the student.

FTE student- Full-time equivalent (FTE) student is the term used to describe enrollment adjusted by attendance status, which counts all full-time students and a portion of part-time students.

Expenditures - An institution's Education and General expenditures (E&G) include instruction, research, public service, academic support, student services, institutional support, operation and maintenance of plant, scholarships and fellowships, mandatory transfers, and nonmandatory transfers. Total expenditures include E&G expenditures plus auxiliary enterprises, hospitals, and independent operations.

Instructional costs - This includes only those expenditures that are classified as directly attributable to instruction (primarily faculty compensation). The indirect costs of instruction from libraries, departmental research, student services, museums, community service, and administration are excluded from this analysis. The source for instructional costs and most other cost information is the federal IPEDS database.

IPEDS - The Integrated Postsecondary Education Data System (IPEDS) is the major federal data collection tool for both financial and enrollment data in higher education. Prior to 1986, IPEDS was called the Higher Education General Information Survey (HEGIS).

Public institutions - Postsecondary institutions that are chartered by state or local governments, with public governing boards, including those with constitutional autonomy.

Private institutions - Private, not-for-profit postsecondary institutions (unless otherwise noted).

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though generalizations can be misleading, a review of a wide-range of research on the topic shows a remarkably consistent analysis of the issue of rising college prices in higher education.

This report ties together data and information from numerous sources in order to help identify the pieces of the tuition puzzle in higher education. The goal of the report is to provide new insights into the causes and consequences of rising college prices, and to question whether rising prices are inevitable, or if something can be done about them. We've used the analogy of the tuition puzzle to convey an image of a mosaic of facts, explanations, and policy responses concerning rising college prices. Readers are cautioned against searching for symmetry among the different puzzle pieces: some are big pieces, some are small; some are clearly about causes, while others seem to be part cause and part response to the problem. By learning from what we know, rather than what we can't answer, the pieces of the puzzle can be fit together to develop strategies that match solutions to the problems uncovered.

The report includes a summary of what has happened with college tuition increases in the last two decades, what has caused the increases, what they have meant for student access and college choice, and how governments and institutions have responded to these increases. It concludes with a synthesis of the consequences of the overall tuition puzzle, recommendations for change in tuition policies—both at the institutional and state policy level—and suggestions for further research.

II: THE TUITION PUZZLE

The tuition puzzle is composed of several key pieces: how college prices have increased; the causes of higher prices; consequences for student access and choice; and responses to higher prices.

A. How College Prices Have Increased

THE SIZE OF PRICE INCREASES

The basic facts about how much prices have increased are largely undisputed:

- Overall, sticker prices (average tuition and fees) increased almost five-fold from 1976-77 to 1996-97, or nearly doubled after adjusting for inflation (NCES, 1997).

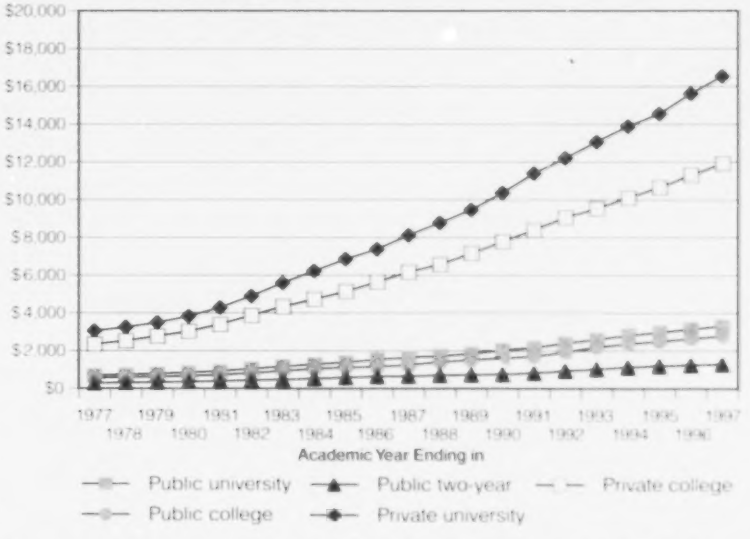
- Between the mid-1970s and the early-1980s, tuition[1] increased steadily, but remained at relatively constant levels when adjusted for inflation. Since the early-1980s, however, sticker prices have continued to grow faster than inflation for all institutional types (See Figure One).

- Tuition has increased in both the private and public sectors of higher education by rates exceeding growth in most major price indices, including students' and families' ability to pay (as measured by per capita personal income). Over the entire period of 1976-77 to 1996-97, tuition increases were greatest in the private sector in terms of both percentage changes and dollar amounts. Since 1989-90, however, public sector tuition has risen by a larger percentage, although from a lower base than in the private sector. Annually, prices increased faster in the private sector than in the public sector in the late 1980s, whereas the public sector had higher rates of growth in the early 1990s (See Figure Two).

- The biggest increase in total prices was due to tuition increases, and not living expenses, books, or other student expenses. Measures of trends in total prices show a slightly slower increase than trends in sticker prices alone (See Figure Three).

Figure One: Average Tuition and Fees by Type of Institution, Academic Year 1976-77 to 1996-97

In constant 1996-97 dollars



Note: College is equivalent to "other four-year insitutions," i.e., not universities. 1996-97 figures are preliminary. Constant dollars are calculated using CPI-U (1982-84 = 100). Private includes for-profit institutions. Private two-year institutions were excluded from this analysis.
Source: NCES, 1997.

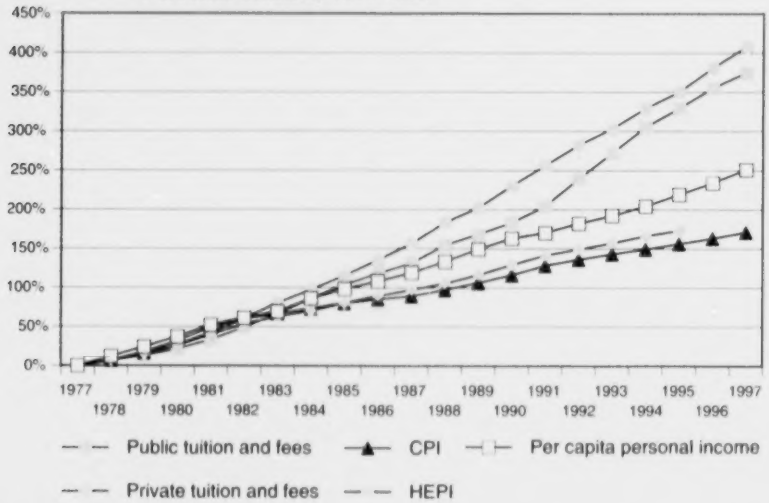
NET PRICES[2]

The wide range of prices for higher education reflects the diversity of types of institutions across the country. Despite the high tuition at some institutions, tuition is relatively low at the overwhelming majority of institutions. In 1995-96, only 81 of 3,600 colleges and universities—less than 3 percent—charged $20,000 or more for tuition and fees (ACE, 1998b). More than three-quarters of the students

[1] In this analysis, tuition includes tuition and fees unless otherwise noted.

[2] The net price referred to in this analysis is net price (grants).

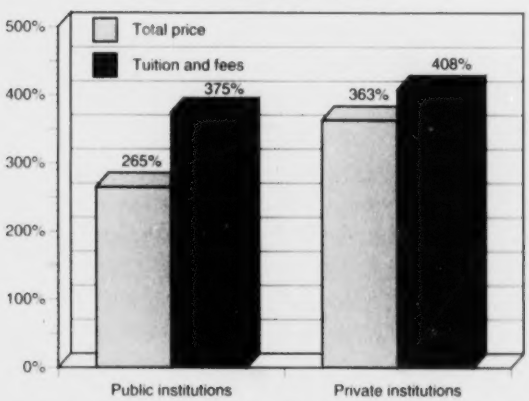
Figure Two: Trends in Tuition and Fees, Price Indices, and Personal Income, 1977-1997



Note: The Consumer Price Index (CPI) and the Higher Education Price Index (HEPI) are calculated for the academic year, (ending in the given year), as are tuition and fees. Per capita personal income is for calendar years. Private insitutions include both non-profit and for-profit institutions. 1996-97 data for tuition and fees are preliminary.
Source: NCES, 1997; U.S. Bureau of the Census, 1997a.

Figure Three: Increase in Prices between 1976-77 and 1996-97

In constant 1996-97 dollars



Note: Private Institutions include both non-profit and for-profit. Total price includes tuition, fees, room, and board. 1996-97 data are preliminary.
Source: NCES, 1997.

enrolled in higher education are in the public sector, where average tuition remains quite low (NCES, 1996, 1997).

Yet looking only at sticker prices does not really explain "affordability"—whether the amount that students and their families actually pay for college is within their reach—as incomes have changed over time. Between 1977 and 1997, average family incomes increased after adjusting for inflation by 41 percent for the highest income quintile, increased at a lower rate for families in the middle quintile, and actually declined slightly for the lowest income group (See Figure Five). Financial aid is designed to maintain affordability despite changes in prices and income. To make this possible, campuses would have had to be very diligent in distributing grant aid in such a way as to compensate for rising prices and different trends in average family income.

However, an analysis of changes in average net price—total price less grant aid—by income level in the 1990s reveals this did not occur. After adjusting for inflation, the average net price of attending four-year institutions—both public and private—increased the most for the lowest income families. Only at public two-year institutions did net prices decline across the board, suggesting that affordability was maintained primarily at community colleges (See Table One).

PUBLIC REACTIONS TO HIGHER TUITION LEVELS

How college prices are perceived is as important as the facts about tuition increases, since perceptions influence the behavior of both students and public policymakers. Several analysts have examined how the general public views higher education prices, as well as how policy leaders look at them. Research commissioned by the American Council on Education (ACE) shows that concern about

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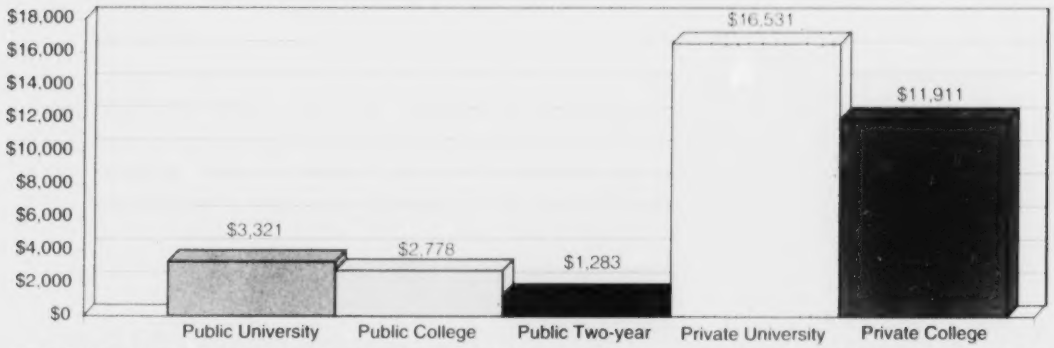
Figure Four: Average Tuition and Fees by Type of Institution, 1996-97



Note: College is equivalent to "other four-year institutions," i.e., not universities. Private institutions include both non-profit and for-profit. 1996-97 data are preliminary.
Source: NCES, 1997.

the price of college is near the top of the list of things parents worry about for their children—greater than their concerns about the quality of public schools, health care for their children, or even the fear that their children will be the victims of crime (ACE, 1998a). The public doesn't understand why prices are going up, although those with an opinion mostly think they are caused by "high-priced" faculty. The public continues to think that the price of college is usually worth it, yet the majority think that the price increases are unfair and that colleges aren't concerned with affordability for the average family.

Analysis commissioned by the California Higher Education Policy Center in 1993—the height of tuition increases in public higher education in California—showed that concern over higher prices led to public pressure to completely overhaul the educational system in that state. Several years later, similar research showed that the call for restructuring abated considerably once the prices stabilized (Immerwahr, 1993, 1998).

Public worry extends to skepticism from policymakers, particularly at the state level, where there is a pervasive belief that higher prices are a reflection of skewed institutional spending priorities. The Education Commission of the States' (ECS) survey of state policymakers reveals that they believe higher education does not spend its money wisely, and that tuition increases could be avoided if colleges realigned their spending with those areas the public most cares about, particularly undergraduate education and job preparation (ECS, 1998). This agenda linking increased evidence of accountability to the possibility of future funding increases echoes the call put forth by others in recent years (see, for example, Wingspread Group, 1993).

B. The Causes of Higher Prices

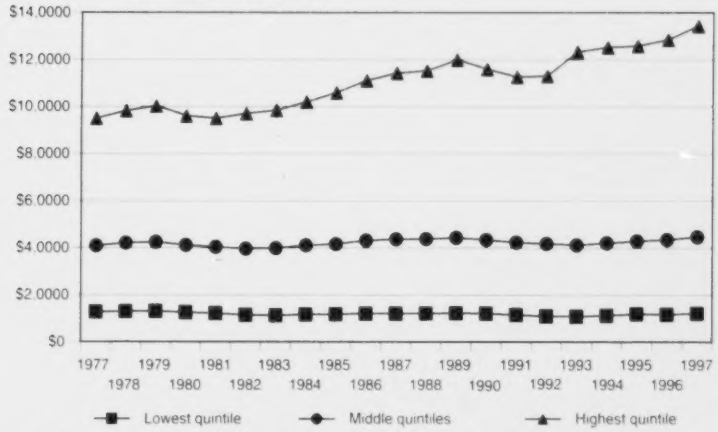
DECLINING ROLE OF PUBLIC REVENUE

The consensus from several different studies is that one of the most significant causes of higher tuitions is the changing role of public revenue (GAO, 1998; Davis, 1997; McPherson and Schapiro, 1998), which declined in relative terms between 1980-81 and 1994-95. The relative decline occurred despite the fact that public revenue dollars have continued to increase—even on an inflation-adjusted, per full-time equivalent (FTE) student basis. Because growth in public funding has not kept pace with overall revenue needs, institutions have turned to other sources to fill the gap—specifically, tuition revenue. Thus, tuition revenue per FTE has grown at a faster rate than both public revenue and total revenue per FTE (See Table Two).

As a result, the composition of revenue has shifted, in both the public and the private sectors. In 1980-81, taxpayer revenue from all sources accounted for 63 percent of total revenue in public institutions and 22 percent in private institutions, while revenue from tuition and fees covered 13 percent and 37 percent, respectively. By 1994-95, the relationship between revenue sources had changed dramatically, with a 12 percentage point decrease in the share of total revenue that came from public tax sources at public institutions and a 5 percentage point decline at private institutions. This was accompanied by a substantial increase

Figure Five: Changes in Mean Family Income, 1977-1997

In constant 1997 dollars



Note: Families as of March of the following year. Constant dollars adjusted with CPI-U
Source: U.S. Bureau of the Census, 1997b.

Table One: Average Net Price by Income Level, 1989-90 and 1995-96

In constant 1996 dollars

Average net price, 1989-90

	Private Four-year	Public Four-year	Public Two-year
$0-$9,999	$10,104	$5,884	$4,995
$10,000-$19,999	$10,720	$6,605	$5,599
$20,000-$39,999	$11,630	$7,585	$5,714
$40,000-$59,999	$13,512	$7,934	$5,963
$60,000 and up	$17,691	$9,382	$6,378

Average net price, 1995-96

	Private Four-year	Public Four-year	Public Two-year
$0-$9,999	$11,771	$7,032	$3,942
$10,000-$19,999	$9,478	$6,061	$4,005
$20,000-$39,999	$11,629	$7,950	$5,057
$40,000-$59,999	$13,788	$9,022	$5,633
$60,000 and up	$17,811	$10,441	$5,486

Real change, 1989-90 to 1995-96

	Private Four-year	Public Four-year	Public Two-year
$0-$9,999	17%	20%	-21%
$10,000-$19,999	-12%	-8%	-28%
$20,000-$39,999	0%	5%	-11%
$40,000-$59,999	2%	14%	-6%
$60,000 and up	1%	11%	-14%

Note: Net price is total price of attendance (tuition and fees plus living and other expenses) less grant aid only. Analysis includes only full-time, dependent undergraduates, including those who did not receive grant aid. The 1989-90 and 1995-96 data are not completely comparable.
Source: NCES, 1990, 1996.

in tuition revenue as a share of total revenue—by 5 percentage points in the both the public and private sector (See Table Three).

The decline in the role of public revenues has affected both the public and private sectors, although the specific relationships differ slightly. In the public sector, there is a direct relationship between lower state revenues and higher tuition and fee levels. A recent U.S. General Accounting Office (GAO) study found that for every dollar lost in state tax revenues, there has been a 75 cent increase in tuition in public institutions (GAO, 1998). As state revenue decreased as a percentage of total revenue from 46 percent in 1980-81 to 36 percent in 1994-95, the share of tuition and fees revenue increased from 13 percent in public institutions in 1980-81 to 18 percent in 1994-95. In response, public institutions have tried to diversify their revenue base, in part through increased fundraising from the philanthropic sector. As a result, the share of overall revenues from philanthropic sources (including gifts and endowment) in the public sector increased by 2 percentage points between 1980-81 and 1994-95.

However, a shift toward non-public revenue sources in the public sector has meant less institutional flexibility in allocation decisions. Even though the roles of revenue sources have shifted, and other revenue sources have been found to abate the relative decline in public resources, there are fewer unrestricted resources available for general institutional purposes. For instance, gift revenue is frequently targeted by donors for limited purposes.

For private institutions, the decline in the role of total taxpayer revenue was not as steep as in the public sector, but the relative decline in federal revenue was felt more sharply than in the public sector—the share of revenue from federal resources declined from 19 percent in 1980-81 to 14 percent in 1994-95. The proportion of revenue from philanthropic sources has remained the same. Combined, the share of revenue from federal and philanthropic sources in the private sector declined by 5 percentage points; in comparison, there was a 5 percentage point increase in the share of total revenues paid from tuition. Private institutions received slightly more (less than 1 percentage point) in state revenue as a proportion of total revenue in 1994-95 than in 1980-81.

Table Two: Percentage Change in Revenue per FTE, 1980-81 to 1994-95
In constant 1994-95 dollars

Public Institutions	Revenue per FTE		Percentage increase
	1980-81	1994-95	from 1980-81 to 1994-95
Tuition and fees	$1,442	$2,814	95%
Federal government	$1,435	$1,695	18%
State government	$5,095	$5,505	8%
Local government	$420	$611	45%
Gifts	$285	$609	114%
Endowment	$56	$89	59%
Other	$2,453	$4,004	63%
Total	*$11,185*	*$15,327*	*37%*

Private Institutions	Revenue per FTE		Percentage increase
	1980-81	1994-95	from 1980-81 to 1994-95
Tuition and fees	$6,482	$11,545	78%
Federal government	$3,325	$3,921	18%
State government	$340	$581	71%
Local government	$133	$160	20%
Gifts	$1,641	$2,391	46%
Endowment	$909	$1,285	41%
Other	$4,863	$7,347	51%
Total	*$17,691*	*$27,230*	*54%*

Note: Private institutions include both non-profit and for-profit.
Source: NCES, 1997.

Another consequence of funding shifts is that competition for revenue between the public and private sectors is increasingly intense. The stable sources of revenue that used to be counted on to pay for the overall purposes of the institution have declined, to be replaced by a more fragmented and competitive revenue base. Public institutions are pursuing philanthropic funds more than in the past, and private institutions are vying for state revenues more than before. Along with increased competition comes greater consumerism, and more fragmentation of institutional attention needed to maintain a diverse funding base.

Table Three: Percentage Share of Revenues by Source, Academic Years 1980-81 to 1994-95

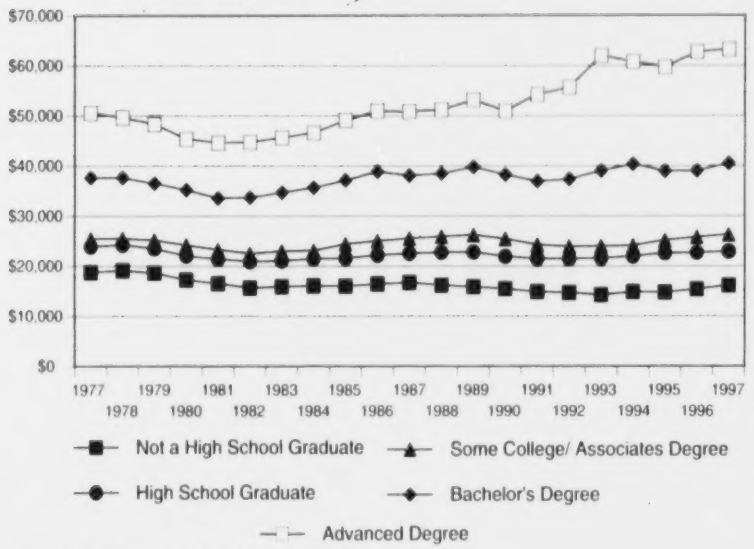
Public Institutions	1980-81	1990-91	1994-95
Tuition and fees	13%	16%	18%
Federal government	13%	10%	11%
State government	46%	40%	36%
Local government	4%	4%	4%
Gifts	3%	4%	4%
Endowment	0%	0%	1%
Other	22%	25%	26%
Total	100%	100%	100%

Private Institutions	1980-81	1990-91	1994-95
Tuition and fees	37%	40%	42%
Federal government	19%	15%	14%
State government	2%	2%	2%
Local government	1%	1%	1%
Gifts	9%	9%	9%
Endowment	5%	5%	5%
Other	27%	27%	27%
Total	100%	100%	100%

Note: Because of rounding, details may not add to totals. Private institutions include both non-profit and for-profit.
Source: NCES, 1997.

Figure Six: Mean Earnings of Workers 18 Years of Age and Older by Educational Attainment, 1977 to 1997

In constant 1997 dollars



Source: U.S. Bureau of the Census, 1998

INCREASED INSTITUTIONAL SPENDING ON STUDENT AID

The need for more tuition revenue has been fueled in part by internal spending patterns, and in particular, by increased spending on student aid. Several analysts (see McPherson and Schapiro, 1998, and National Commission on the Cost of Higher Education, 1998) have concluded that increased spending for institutional aid is another significant "driver" of higher prices. The increased spending occurred in both the public and private sectors, although many analysts have noted that higher spending is a relatively greater cause of rising tuitions in the private sector (Hauptman and Krop, 1998; Davis, 1997; McPherson and Schapiro, 1998).

Table Four: Percentage Increases in Top Three E&G Expenditure Categories by Sector, 1986-87 to 1993-94

Research and Doctoral Universities (Carnegie Research I & II, Doctoral I & II)

Public		***Private***	
Unrestricted scholarships	85%	*Unrestricted scholarships*	83%
Funded research	30%	Institutional support	27%
Public service	24%	Instruction	27%

Comprehensive Universities (Carnegie Comprehensive I & II)

Public		***Private***	
Unrestricted scholarships	51%	Funded research	137%
Public service	35%	*Unrestricted scholarships*	94%
Restricted scholarships	13%	Restricted scholarships	31%

Liberal Arts Colleges (Carnegie Liberal Arts I & II)

Public		***Private***	
Funded research	164%	*Unrestricted scholarships*	91%
Unrestricted scholarships	57%	Funded research	45%
Public service	42%	Library	27%

Community Colleges (Public Carnegie Two-Year Schools)

Funded research	175%
Restricted scholarships	58%
Unrestricted scholarships	54%

Note: All expenditure amounts were adjusted for inflation and presented in 1993-94 current dollars before percentages were calculated. The universe of institutions includes only those for which data were available in 1986-87, 1990-91, and 1993-94. Unrestricted scholarships represent institutional student aid and restricted scholarships represent student aid from other sources.

Source: McPherson and Schapiro, 1998.

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Underlying the shift to greater tuition discounting—reducing the price charged—is a self-conscious effort by many institutions to use enrollment management strategies to redistribute subsidies and at the same time protect student access. Students who have the means to do so are charged the full sticker price, and a portion of the tuition revenues is redirected to need-based financial aid, which is then packaged to go to poor students or to students with desired characteristics. Such strategies have many variations, ranging from admitting students without regard to financial need and meeting their full need, to deliberately shaping a financial aid strategy that maximizes the quality of incoming students as well as the revenue obtained from them.

Table Five: Salary of Full-time Instructional Faculty

In constant 1995-96 dollars

	1970-71	1995-96	Percentage change
All	***$49,431***	***$49,309***	***0%***
Professor	$69,841	$64,540	-8%
Associate professor	$52,751	$47,966	-9%
Assistant professor	$43,466	$39,696	-9%
Instructor	$36,402	$30,344	-17%
Lecturer	$43,544	$34,136	-22%
No Rank	$47,967	$42,996	-10%
Public	$50,379	$48,837	-3%
Public four-year	$51,033	$51,172	0%
Public two-year	$49,176	$43,295	-12%
Private	$45,187	$50,466	12%
Private four-year	$45,987	$50,819	11%
Private two-year	$33,696	$31,915	-5%

Source: NCES, 1997.

At the same time, the "high tuition/high aid" model has been advocated for many years by a number of analysts (see in particular Hansen and Weisbrod, 1969; and Fischer, 1990) as a more efficient and equitable way to distribute public resources, by funding students based on economic need rather than general appropriations to institutions. The model involves lowering direct support to public institutions, raising public tuition and fees to close to full-cost levels, and using public resources for need-based grants or targeted tuition discounts. The theory is that even with tuition increases, access can be protected through increased institutional aid. This strategy is similar to the enrollment management mechanisms used within institutions, but redistributes revenue across higher education sectors.

The ultimate effect of both of these strategies has been to increase institutions' provision of student aid. Analyses conducted by McPherson and Schapiro (1998) and others confirm that institutional aid accounts for one of the largest categories of spending increases per FTE student within higher education. With the exception of private comprehensive universities, public liberal arts colleges, and community colleges, institutional spending for "scholarship" expenditures from unrestricted revenues increased at rates that outpaced any other expenditure category (See Table Four).

SPENDING FOR "PRESTIGE"

Several higher education analysts believe that another example of competition contributing to rising prices lies in spending to increase prestige, or gaining a competitive market advantage. This theory is presented most clearly in the essay "The Lattice and the Ratchet," by Zemsky and Massy (1990), and reiterated in Massy's testimony before the National Commission on the Cost of Higher Education (Massy, 1997). Their analysis is that the competitive market has increased the value of prestige, and when colleges are faced with the option of cutting, spending, or increasing prestige, they will choose the latter course, since with higher prestige comes greater resources. While harder to quantify empirically than student aid spending, the analysis of expenditure trends and costs done by McPherson and Schapiro (1998) offer some corroborative evidence from research universities to support Zemsky and Massy's theory. Their analysis shows that the two sectors in higher education that have seen the greatest internal spending increases outside of student aid are the public and private research universities. Most of these increases were in public service and research, not in instructional areas.

IT'S THE ECONOMY

To borrow an aphorism from Clinton campaign strategist James Carville, one simple answer to the reason for higher college prices is "it's the economy, stupid." The rising economic necessity of college attendance has increased college enrollment rates. This "wage premium" has al-

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lowed demand to continue increasing, despite higher prices, contrary to normal economic logic. Whereas in past generations Americans could make a reasonable living with just a high school education, the changing workplace demands higher skills and places a higher premium on credentials than ever before. Some college attendance or post-high school technical training has become a prerequisite for many entry-level jobs.

The gap in earnings for baccalaureate degree holders and high school graduates has widened. In 1977, workers who had attained a bachelor's degree earned 58 percent more than did workers whose highest level of education was high school; by 1997, this gap had risen to 77 percent. The gap in average earnings between advanced degree holders and high school graduates has widened even further: 112 percent in 1977 and 176 percent in 1997 (U.S. Bureau of the Census, 1998). Average annual earnings of workers 18 years of age and older, adjusted for inflation, show divergent patterns according to educational attainment. The earnings of advanced degree holders have increased considerably since 1977 and the earnings of workers with bachelor's degrees have increased slightly, whereas the earnings of high school graduates have declined over this period. When higher prices are compared to future earnings for bachelors' degree holders, the economic payoff from going to college has not increased at the same rate that the price of attending college has. Therefore even though the economic value of college has grown, it is because the penalty of *not* going to college has increased, more than because of the economic payoff from going.

Table Six: Percentage Change in Faculty Composition by Full-time/Part-time Status, 1970-71 to 1993-94

	Full-time		Part-time	
Year	Full-time Number	% Share	Part-time Number	% Share
1970-71	369,000	78%	104,000	22%
1971-72	379,000	77%	113,000	23%
1972-73	380,000	76%	120,000	24%
1973-74	389,000	74%	138,000	26%
1974-75	406,000	72%	161,000	28%
1975-76	440,000	70%	188,000	30%
1976-77	434,000	69%	199,000	31%
1977-78	448,000	66%	230,000	34%
1979-80	445,000	66%	230,000	34%
1980-81	450,000	66%	236,000	34%
1981-82	461,000	65%	244,000	35%
1982-83	462,000	65%	248,000	35%
1983-84	471,000	65%	254,000	35%
1984-85	462,000	64%	255,000	36%
1985-86	459,000	64%	256,000	36%
1986-87	459,000	64%	263,000	36%
1987-88	523,000	66%	270,000	34%
1989-90	524,000	64%	300,000	36%
1991-92	536,000	65%	291,000	35%
1993-94	546,000	60%	370,000	40%

Percent increase in part-time instructional faculty from 1970-71 to 1993-94: 256%

Percent increase in full-time instructional faculty from 1970-71 to 1993-94: 48%

Note: Data unavailable for missing years.
Source: NCES, 1997

A "NON-CAUSE": SPENDING FOR INSTRUCTION

While the data indicate that the preceding factors may have some impact on the rise in tuition, it is important to note what the research says about factors that have *not* contributed to the price increases. Public opinion polling and interviews with policy leaders show a commonly held perception that spending for faculty—protected by the tenure system—is one of the major internal cost drivers (ACE, 1998a; ECS, 1998). Yet the national trend data simply don't support that point of view: average faculty salaries in constant dollars have declined since 1970-71 at public institutions, and have risen only slightly at private institutions (See Table Five). The number of part-time faculty has increased overall (NCES, 1997).

An analysis of changes in various categories of E&G expenditure by McPherson and Schapiro (1998) includes data on per-student spending for instruction compared with per-student spending on other categories of expenditure for 1986-87 and 1993-94. They show that, in real

The Dilemma of Federal Policy and Price Increases

One of the more debated and unresolved pieces of the tuition puzzle is the role that federal loan increases have had on higher prices. Some analysts contend that federal loan capital has allowed institutions to raise tuitions, and to redirect a portion of the additional revenue to institutional aid (see Hauptman and Krop, 1998). These analysts infer a direct causal relation between loan availability and the tuition discounting phenomenon. Others contend that blaming the federal student loan system for college tuitions is like blaming the egg for the chicken, since colleges had to increase tuitions because of the declining role of public funding, not because of federal aid availability. At the nub of the debate is disagreement about what interventions the federal government might consider to discourage tuition increases without instigating price controls on one hand, or hurting student access on the other.

But while the loan programs so far have not provided the "smoking gun" proof that federal funding practices have caused tuition increases, the federal government may not be able to remain above the fray for long. In 1997, Congress and President Clinton created new tuition tax credits to allow parents and students to help pay for college tuitions.

For eligible students attending public institutions, the Hope Scholarship should represent a substantial discount on sticker prices (Zucker, 1998). In those states where tuitions remain relatively low—such as California, Florida, Texas, and North Carolina—the benefit to the students, the state and the institutions from the federal credit will be less. As a result, tax analysts in these states have begun to note that the states might want to reevaluate their policies of maintaining low tuition in order to recapture the federal tax benefit. Recognizing that states now have the incentive to increase public tuitions to take advantage of federal tax incentives, Secretary of Education Richard Riley has publicly urged Governors and State legislatures against increasing their public tuitions. At the moment, the political mood against tuition increases, along with the strong economy, have kept such shifts from occurring. But the pipe has been laid, and absent a change in federal policy, state tuition increases that will be directly attributable to federal financing policies are likely (Burd, 1998).

terms, private institutions have been able to increase per-student spending on instruction over this period (especially private research universities), whereas public institutions generally have not. Spending on instruction per student actually declined in the public comprehensive colleges and liberal arts colleges. At the same time, per-student spending for other categories of spending, such as research and public service, has increased at faster rates than per-student instructional spending. Only in private research universities has instructional spending grown at a more rapid pace than most other categories. As a result, the composition of total E&G spending has shifted slightly away from instruction and toward such categories as research and public service for some types of institutions—in particular, public research universities (See Table Seven). This shift is probably attributable both to cost cutting efforts and to increased funding opportunities outside of instruction.

C. Consequences for Student Access and Choice

STUDENT ACCESS

The changing role of financial aid in relation to price and the internal dynamics of the higher education student marketplace have been studied extensively (Heller, 1997; McPherson and Schapiro, 1998; National Commission on the Cost of Higher Education, 1998). Heller concludes from his summary of recent analyses that as prices go up, enrollments go down, even with the provision of aid. According to Heller, the consensus among researchers is that every $100 increase in tuition results in a drop in enrollments of 0.5 to 1.0 percentage points across all types of institutions. Decreases in financial aid also lead to declines in enrollment, with the effect differing depending on the type of aid awarded. In general, enrollments are more sensitive to grant awards than to loans or work-study.

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Table Seven: Real Change in E&G Expenditure Categories per FTE Student Between 1986-87 and 1993-94

	Instruction and self-supported	Funded research	Public service	Academic support	Library expenditures	Student services	Institutional support	Operations and maintenance	Restricted scholarships	Unrestricted scholarships	Plant additions
Public:											
Research and Doctoral	**6%**	**30%**	**24%**	**15%**	**12%**	**15%**	4%	-5%	**11%**	**85%**	-2%
Comprehensive	**-1%**	**5%**	**35%**	**8%**	**5%**	**12%**	**1%**	-14%	**13%**	**51%**	-12%
Liberal Arts	**-4%**	**164%**	**42%**	**0%**	**0%**	**2%**	-7%	-20%	**19%**	**57%**	-33%
Two-Year	**0%**	**175%**	**10%**	-7%	**1%**	**8%**	-5%	-9%	**58%**	**54%**	**7%**
Private:											
Research and Doctoral	**27%**	15%	23%	-5%	24%	26%	27%	13%	17%	**83%**	-1%
Comprehensive	**11%**	**137%**	6%	3%	**28%**	**25%**	3%	-2%	**31%**	**94%**	**22%**
Liberal Arts	**14%**	**45%**	11%	**18%**	**27%**	**22%**	8%	-1%	**22%**	**91%**	13%

Rate of increase is the same or lower than instruction
Rate of increase is faster than in instruction

Note: All expenditure amounts were adjusted for inflation and presented in 1993-94 constant dollars before percentages were calculated. The universe of institutions includes only those for which data were available in 1986-87, 1990-91, and 1993-94.
Source: McPherson and Schapiro, 1998.

However, access to college, as measured by the proportion of people going to college, has increased consistently over the period from 1977 to 1997. Nationally, 67 percent of recent high school graduates enrolled in college immediately after high school in 1997 (64 percent for men; 70 percent for women), increasing from just 51 percent in 1977. Enrollment has been rising for all income groups throughout most of the 1980s and 1990s. However, the gap between low- and high-income students is still close to 30 percentage points (NCES, 1998). Therefore, it does not appear that overall access has been affected negatively by rising prices, though gaps between low- and high-income students remain a serious concern.

INSTITUTIONAL CHOICE

While overall access may have been maintained, it is clear that the growing price gap between public and private colleges increasingly has made attendance at some private institutions a financially prohibitive choice for many students. Reducing the size of the price gap between public and private institutions has been a goal for many policy leaders over the last two decades, particularly those who are worried about the potential loss of institutional diversity and quality that might accompany a lessening of opportunity in that sector. In the early 1970s, the Carnegie Commission on Higher Education recommended that a national goal be set to maintain private/public price differentials of roughly 2.5 to one (Carnegie Commission on Higher Education, 1973). The "tuition gap" between private and public institutions has changed over the past two decades, but has not met the Carnegie recommendations. Measured as a ratio, the size of the gap has remained about the same: between 1976-77 and 1996-97, private tuition has remained more than four times higher than public tuition. At the same time, the size of the gap—measured in constant dollar amounts—has increased significantly, to an average of $13,210 in the university sector and $9,133 in the collegiate sector.

Table Eight: Average Difference in Tuition and Fees Between Private and Public Institutions

In constant 1996-97 dollars

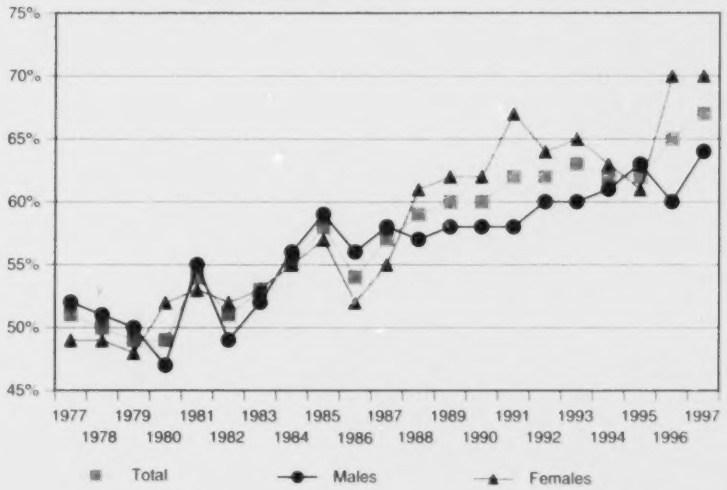
	Ratio of private to public universities	Difference (in dollars)	Ratio of private to public colleges	Difference (in dollars)
1976-77	4.43	$6,394	4.19	$4,867
1996-97	4.98	$13,210	4.29	$9,133

Note: Adjusted for inflation using CPI-U (1982-1984 = 100).
Source: NCES, 1997.

But the most important impact on student enrollment choice may not

have been isolated to public/private price distinctions; there is a growing body of research showing structural shifts of enrollments by institutional mission as well. As Heller (1997) points out, lower-income students are more sensitive to changes in tuition and aid than are students from middle- and upper-income families. Increased aid, therefore, has not been enough to prevent negative enrollment consequences, particularly among the lowest income students.

Figure Seven: College Enrollment Rates of High School Graduates, 1977 to 1997



Note: Enrollment in college as of October of each year for individuals ages 16 to 24 who graduated from high school during the preceding 12 months. Includes GED recipients.
Source: NCES, 1997; U.S. Bureau of Labor Statistics, 1997.

One of the most revealing pieces of research about the structural consequences of increased prices on enrollments has been presented by McPherson and Schapiro (1998). They show that the different sectors of higher education are more economically segregated now than in the past. While the percentage of lower-income freshmen attending public two-year institutions has remained steady—having risen slightly from 46 percent in 1980 to 47 percent in 1994—students from wealthier families have fled from these institutions. The percentage of middle-income students attending public two-year institutions fell from 39 percent to 34 percent, upper middle-income went from 28 percent to 22 percent, upper-income decreased from 17 percent to 14 percent, and the richest students fell from 15 percent to 9 percent. At the same time, a greater percentage of the richest freshmen attended public and private universities in 1994 than in 1980 (See Table Nine). The bottom line is that higher education risks becoming more economically stratified by sector now than any time in the last two decades, despite the substantial investment in student aid.

D. Responses to Higher Prices

There seem to be five basic responses by institutional, state, and federal policymakers to rising college prices: 1) expansion of programs to make it easier for families to pay for college; 2) improved public information to students and parents about college prices; 3) cost reduction strategies; 4) initiatives to improve productivity; and 5) state-level tuition policy and budget practices. To borrow a medical analogy, the first two strategies can be described as both symptomatic and therapeutic, designed to increase options and improve awareness, but not intended to get at the root causes of tuition and price increases. The latter three are more systemic.

EXPANSION OF PROGRAMS TO MAKE IT EASIER FOR FAMILIES TO PAY FOR COLLEGE

Expansion of funding options—through expanded borrowing, prepayment plans, and new tax benefits—has been the area of tuition *budgetary* policy that has received the most public policy attention in the last 10 years. While some of these efforts have focused on increasing need-based student aid, there has been a considerable expansion of efforts to ensure that middle- and upper-income families have more options to help pay for college as well. Prepaid tuition plans, college savings plans, and private loan plans that offer a wide range of repayment options are very common now; they are all ways that the tuition bite can be softened for families who do not qualify for need-based financial aid (see Olivas, 1993, for a fuller discussion of prepaid tuition plans). Some state aid programs, such as Georgia's politically popular Hope Scholarship program, feature funding that is packaged

Table Nine: Percentage Distribution of Freshmen by Institutional Type and Income Background, Fall 1980 and Fall 1994

	Public			Private		
1994	Two-year	College	University	Two-year	College	University
Total	*31%*	*24%*	*19%*	*3%*	*17%*	*6%*
Lower	47%	23%	11%	3%	13%	3%
Lower-middle	39%	25%	15%	3%	15%	3%
Middle	34%	25%	18%	3%	17%	4%
Upper-middle	22%	26%	25%	2%	18%	7%
Upper	14%	20%	28%	3%	22%	13%
Richest	9%	13%	25%	4%	27%	22%
	Public			**Private**		
1980	Two-year	College	University	Two-year	College	University
Total	*36%*	*20%*	*18%*	*4%*	*17%*	*5%*
Lower	46%	23%	10%	6%	13%	2%
Lower-middle	42%	21%	13%	5%	15%	3%
Middle	39%	20%	17%	4%	16%	4%
Upper-middle	28%	20%	25%	3%	18%	7%
Upper	17%	16%	27%	3%	25%	13%
Richest	15%	12%	20%	3%	32%	20%

Note: College is equivalent to "all other four-year institutions," i.e., not universities. Because of rounding, details may not add to totals.
Source: McPherson and Schapiro, 1998.

with early outreach programs designed to enhance academic preparation for college. The most prominent national example of programs targeted at middle and upper-income families is the federal Hope Scholarship tax credit. Furthermore, a number of institutions have contracted with private tuition payment companies to work with families (for a small fee) to allow them to spread college payments over a 10- or 12-month period (McDonald, 1995).

IMPROVED PUBLIC INFORMATION TO STUDENTS AND PARENTS ABOUT COLLEGE PRICES

Research continues to show that the general public overestimates the price of college, and underestimates the availability of financial aid. This misinformation then contributes to lowered expectations which can affect college enrollment options. As a result, many states and institutions are embarking on public information efforts, designed to improve public understanding about college prices and the different ways to meet them. The most prominent national example of such a campaign is one now being led by the American Council on Education. Their "College is Possible" campaign is a national coalition of organizations and institutions joined together to improve public information about college prices. To the extent that students are opting away from college or choosing lower-priced institutions out of misperceptions about tuition and financial aid, this strategy may be helpful in the long run to reduce negative enrollment consequences from price increases. However, even if successful in improving consumer decisionmaking, these campaigns cannot be presumed to help directly with stabilizing price increases.

COST REDUCTION STRATEGIES

There can be no disputing that higher education as an industry has responded to reduced resources through cost cutting. Information from the National Association of College and University Business Officers (NACUBO), the Learning Productivity Network, the American Council on Education, and the National Commission on the Cost of Higher Education shows considerable evidence of institutional efforts to hold down spending. Unfortunately, there is no accepted way to quantify the effect of these kinds of initiatives on total costs or prices. Cost cutting strategies can be grouped into three categories: cost deferral strategies, strategic cost reductions, and permanent cost restructuring.

- *Cost deferral strategies* are ways that institutions respond to short-term budget shortfalls by avoiding spending. Hiring freezes, purchasing deferrals and reductions in maintenance, grounds, and building repairs are common examples. Cost deferrals are ways to save money without permanently reducing the base expenditures. In fact, in the case of deferred maintenance, cost deferrals can end up driving up long-term costs.

- *Strategic cost reductions* are reductions in expenditures while maintaining most functions. Strategic cost reductions typically occur in administrative and support

areas. NACUBO encourages institutional members to identify strategies they have used to cut costs, and now manages a national competition designed to advertise strategies and promote best practices. Many of the NACUBO network cost reduction strategies are examples of strategic cost reductions in areas such as utilities savings, cost savings through pooled purchasing, and savings in employee benefits costs through shifts to HMO plans (NACUBO, 1997).

- *Permanent cost restructuring* eliminates some functions, and permanently reduces the costs of others. Examples of permanent cost restructuring are eliminating low-enrollment courses, shutting down programs, and replacing full-time faculty with part-time faculty. The trends noted earlier in hiring patterns of full-time and part-time faculty suggest that this kind of cost restructuring has been a common phenomenon in higher education.

INITIATIVES TO IMPROVE PRODUCTIVITY

Several researchers are beginning to focus attention on finding ways to generate sustained improvements in productivity by joining cost reductions with quality and outcome improvements. The national leader in this arena has been D. Bruce Johnstone, who has put together a "Learning Productivity Network" at the State University of New York at Buffalo. Johnstone argues that the only way that institutions can address the long-term imbalance between resources and needs is through sustained productivity increases. He provides several examples of ways that institutions can permanently reduce costs through greater attention to efficiency improvements, including year-round-operations; reducing redundant course taking through improved counseling and better scheduling; and reducing time-to-degree through more efficient course sequencing, including better use of high school time to generate college credit (Johnstone, 1993; Johnstone and Maloney, 1998).

Massy (1997) is also focusing research to develop alternative measures of institutional quality which focus on sustained outcomes rather than on traditional resource input measures. Different ways of measuring quality have to be found before goals can be set for how much can occur through productivity. In simple terms, productivity can be said to occur when quality is increased and costs are maintained, or when costs are reduced but quality is maintained. The issue of productivity is a remarkably painful one for higher education, in part because faculty assume it is a code-word for higher workload, and because the culture of the academy pretends to reject utilitarian or market-based notions of production and efficiency. As a result, most institutional quality assessments avoid looking at use of resources as one element of quality. It is simply taken as a given that more money means better quality. The assessment movement clearly has not caught up with cost measurement.

STATE-LEVEL TUITION POLICIES AND BUDGET PRACTICES

One of the responses that seems not to have occurred is systematic attention to tuition policy, particularly in the public sector, and to the relation between tuition and costs. This area has not been the topic of much research. As a result, a brief discussion of how public tuition policies are designed, and what has happened to them in the current environment, is provided here.

Tuition policy in higher education is set at two levels: by institutions, under the authority of governing boards or trustees; and by states, through laws or budget practices that implement tuition decisions. The federal government does not have tuition policies for higher education, although it can be said to be an intensely interested observer of tuition policy, since one of the goals of federal aid programs is to enable access to higher education. Also, the student aid need analysis formulas take price of attendance into account in determining award amounts.

While state tuition policies are immediately relevant to the public sector, they are germane to the private sector as well, because tuition is a key ingredient in how higher education budget appropriations are put together. Private institutions also are keenly interested in state student aid and in the trade-offs between direct appropriations to public institutions in contrast to student aid funding. Private institutions are politically important, as they participate in the creation of state tuition policies, even though the policies do not apply directly to their institutions.

The general structure for state tuition policies are as follows:

- *Mission-based tuition policies*. Every state has some form of mission-based tuition policy, with the lowest tuitions charged to students in two-year institutions,

Table Ten: Variation in Tuition Philosophy and Procedures Among the States, 1992

Philosophy/Procedure	Number of States: Research Universities	State Colleges & Universities	Community Colleges
Low-tuition philosophy	8	6	14
Moderate-tuition philosophy	18	21	19
High-tuition philosophy	5	5	3
"Indexed" to comparable institution	7	6	4
Institution-level decisions only	12	10	8
Total	*50*	*48*	*48*

Source: Lenth, 1993

and charges calibrated upward to the highest amounts in research universities.

- *Policy or philosophic underpinning.* Most states have some policy statements that assert their basic philosophy or policy framework for tuition. A 1992 survey found that the majority of states with a tuition "policy" report that they have a low- or moderate-tuition philosophy, rather than a "high-tuition" or "full-cost" policy (Lenth, 1993). "Low" was defined to mean keeping tuitions as low as possible; "moderate" was a cost-sharing approach; and "high" meant students would bear more of the cost increases than the state. A number of states did not claim to have a tuition policy, but set tuitions based on charges in comparable institutions in other states, or on individual institutional circumstances (See Table Ten).

- *Authority to set tuition.* The authority to set tuition is generally shared among the legislature, governor, governing boards, and sometimes the campuses in multi-campus systems. As such, decisions about tuition charges occur where there is broad-based shared responsibility between government and higher education, rather than authority to act unilaterally, which is clearly held by one side or the other. This means that tuition decisions are political, and that a number of interest groups try to influence the process.

- *Indexing of tuitions.* Most states have policies that focus more on how increases in tuition will be indexed rather than on the base tuition structure. These policies allow tuition to increase according to some measure of inflation or ability to pay, or in comparison to peer groups.

- *Cost-based tuition differentials.* Many states set some prices in high-cost areas at greater levels than others in order to recapture some of the revenues associated with the greater costs. These cost-based price structures are known as differentials. Tuition differentials are typically charged to non-resident students, for instance, where many state laws specify that the out-of-state students shall be charged prices that equal the full cost to the state to provide the education. Tuition differentials also are charged for some graduate and professional programs. In 1998, for example, 32 states charged graduate students in the public universities more than undergraduates, a differential averaging around $500 more per year for graduate students, or roughly 14 percent of average residential tuition of $3,500 for undergraduates (Washington Higher Education Coordinating Board, 1998).

Despite the use of some cost differentials, most tuition structures are not consistently cost-based. The costs of instruction in research universities are typically much higher than in comprehensive or community colleges, yet the student share of costs—as measured by tuition and fees as a percentage of education and general revenues—was lowest in the public research universities, followed by community colleges (See Table Eleven) (Lenth, 1993).

- *Cost-sharing arrangements.* Another variation on cost-based policies are cost-sharing tuition structures. Usually applied to tuition increments or increases rather than the base structure, cost-sharing arrangements assign some portion of the share of new costs to the taxpayers or to students. An example of cost sharing used to index revenues can be found in Minnesota, which has a "shared responsibility" arrangement for splitting new revenues between the state and the student (Minnesota Higher Education Coordinating Board, 1994).

Table Eleven: Tuition and Fee Revenues as a Percentage of Total Institutional Revenue and E&G Expenditures at Public Institutions, 1975-76 to 1990-91

	Tuition and Fees as a Percentage of Total Revenues	Tuition and Fees as a Percentage of Total E&G Expenditures
1975-76		
Public Research	12%	16%
Public Four-Year	18%	22%
Public Two-Year	16%	18%
1980-81		
Public Research	12%	15%
Public Four-Year	18%	21%
Public Two-Year	15%	17%
1985-86		
Public Research	13%	17%
Public Four-Year	19%	23%
Public Two-Year	15%	17%
1990-91		
Public Research	15%	18% (25%)*
Public Four-Year	22%	26% (39%)*
Public Two-Year	17%	19% (45%)*

* Figures in paranthesis exclude "restricted" E&G expenditures, which is primarily specialized research expenditures. This exclusion is not available for prior years.

Source: Lenth, 1993

The problem with state tuition policies is that they tend to be swept away by the power of funding decisions. And the structural shifts in budget policies at both the federal and state level mean that higher education funding is being squeezed. At all levels of government, efforts to reduce taxes and control spending have created budget structures that constrain spending on "discretionary" items.

At the state level, higher education funding is part of a relatively small portion of the state budget that governors and legislatures can control, unencumbered by federal or state entitlement laws that constrain their options. The portion of the budget that is available for discretionary spending is declining, and with it, the general fund revenue base for higher education. General tax appropriations to higher education went from nearly 16 percent of total state spending in Fiscal Year 1987 to 13 percent in 1997, at the same time that spending for Medicaid increased from 8 percent to almost 15 percent, and corrections rose from 5 percent to 7 percent (NASBO, 1998).

State budget decision-makers, faced with hard decisions and unwilling to raise taxes, believe that tuitions can be raised to substitute for lost general funds without fundamental negative consequences on programs or services. This *de facto* tuition policy that has been adopted by state government is one that has been called "passive resistance"—or letting natural forces take their course (Roherty, 1997). In the current political environment, those natural forces mean that general funds will decline, and tuitions will go up.

Along with the structural budget issues is the political process between higher education and state government that accompanies tuition increases. Most states are on record as having policies that college tuitions will be kept as low as possible. Rather than having policies that manage prices, increases are avoided in good times, while charges increase sharply in bad times. What happens as a result is a "boom and bust" phenomenon, with tuition increases ratcheting upwards in double digits in some years, and holding at zero or even being rolled back in other years. If institutional leaders attempt to smooth out increases, they risk approbation from state political leaders, students, and the media. Because tuition increases are a political hot potato, and because responsibility for approving them is shared between the academy and state government (including the governor and the legislature), the result is a form of tuition "chicken," where each waits for the other to take the initiative. It is therefore not surprising that tuition increases often occur at the very end of the state budget process, too late for students and families to make enrollment decisions.[1]

[1] Research conducted by colleges in California has shown that the enrollment losses occur when tuition spikes, but that the students tend to return in subsequent semesters or future years. (Unpublished research conducted by the Los Rios Community College District, and the Los Angeles Community College District, cited in CPEC, 1990.) This research suggests that if tuition increases are moderate and predictable, then students can plan to meet them and the negative enrollment consequences can be lessened.

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III. PUTTING THE PIECES OF THE PUZZLE TOGETHER

Summary and Conclusions

College prices have increased nearly five-fold over the last two decades, mostly because of public funding reductions at both the federal and state levels. The price spiral has been exacerbated by institutional spending patterns, particularly to increase funding for student aid in order to maintain access and affordability. There is also some evidence that research institutions are increasing spending, primarily outside of instruction, in order to maintain or enhance their market position. These responses suggest that competition in the higher education market has contributed to price increases in selective institutions, rather than stabilizing or decreasing prices, as would be expected.

Access to college, as measured by the proportion of people going to college, is being maintained despite the higher prices, though gaps between low- and high-income students remain a serious a concern. When the higher prices are compared to the economic costs of not going to college, clearly the costs of not going to college outweigh the price of attendance, even at the higher tuition levels. But if earnings alone are the measure of the worth of the additional investment required for a bachelor's degree, the benefit has not increased nearly as much as the price; earnings for baccalaureate degree holders have remained steady.

Institutions have invested significantly in student aid to help keep college affordable. In fact, institutional expenditures to pay for more grant assistance have been one of the largest cost increases in higher education. Many more funding options are available to ensure that cash is available to pay for college as well, through increased borrowing and repayment options. And families are being encouraged to save money for college, through tuition prepayment, savings plans, and federal tax changes that have increased the attractiveness of those options. Efforts to increase public awareness about ways to pay for college, and about the real facts of college affordability, are underway, designed to address negative and frequently inaccurate public perceptions about college prices.

Because of the necessity to find cost savings, spending on instruction in most types of institutions has not kept pace with spending in other categories, notably research and public service. At the same time, institutions are becoming more entrepreneurial in finding new revenue sources, not just from tuitions but from private and philanthropic sources. The combination means a more fragmented revenue base, with less institutional activity directly associated with instruction.

Much of the response to rising prices from both national and state policymakers has been focused on efforts to increase financial options to help students meet the higher prices, and to improve public information about college prices. Neither of these responses are intended to actually reduce the price of college. At the institutional level, institutions are engaged in widespread cost cutting efforts, including some recent efforts to address both productivity and costs. These cost cutting and productivity efforts hold the most promise to reduce the tuition increases by holding down costs. They also risk further cuts in funding for instruction, simply because it is a core function of most institutions. But most important, because a root cause of the tuition problem is the role of public revenues, the problem can't be solved through cost cutting or even increased productivity alone. These steps have to be part of a comprehensive institutional response to the tuition problem, including attention to the revenue side.

There has not been a systematic restructuring of tuition price structures as part of the public policy response to higher prices. There is also a huge gap in most states between the stated tuition policies and the policies that are enforced through the state budget and funding practices. Most state tuition policies are designed as revenue policies more than as pricing strategies. Price structures have not been recalibrated to reflect the new revenue realities. To the contrary, the stated tuition policy for most public institutions is that tuitions should be kept as low as possible—a pretense that is in sharp contrast to the *de facto* policy that tuitions can increase when state revenues decline. Because the policies are not acknowledged, tuition charges go up and down in a boom and bust phenomenon, without a restructuring of price structures to better reflect costs or student ability to pay. Serious attention is simply not paid to the relation between price and cost, and to where public subsidies are being put both at the institutional level and across all of higher education. Pricing policies are based on spending, rather than

on internal costs or expenditure patterns. What that means is that as spending increases, tuition increases. The general inattention to the distribution of public subsidies and program costs also masks important funding patterns across institutions, where the student share of costs is highest in the baccalaureate institutions, and lowest at the research universities.

While inattention to tuition policies and price structures may have contributed to the problem, they clearly have not been the primary cause of it. A more prominent reason is that rising tuition, particularly in the public sector, is the consequence of *de facto* state budget policies that have acknowledged that tuitions can increase, and the path of least resistance for both state decision-makers and institutional leaders has been to let the role of public revenues decline, and the tuitions to rise. The diminishing role of state funding in turn has led to increased competition for private resources between the public and private sector, which then has led to greater spending.

Rising college prices are the biggest single threat to public and political support for higher education. State and federal policymakers have been active co-contributors (along with institutional leaders) to the increase in college tuitions, because they believe that higher education can afford to take cuts in public revenues by making up revenue losses in increased tuitions, and through increases in financial aid. At the same time, the pretense that college tuitions are still "low" is maintained in policies and political habits that thwart efforts to restructure prices and manage costs.

The booming economy of the 1990s has meant that state higher education budgets are once again in a growth mode. As a result, the rate of tuition increases has slowed, and some states have even tried to roll back tuitions. The commitment to maintain tuitions with no more increases has become a popular political slogan among governors across the nation. But the new public funding is unfortunately not due to a changed budgetary *position* for higher education. Both at the federal and state level, higher education remains caught in the discretionary budget squeeze, with budgets unlikely to grow to accommodate both workload and inflationary increases over the next decade. Because times are good, pressure is on once again to cut taxes; in 1997-98, there were more tax cut initiatives being considered at the state legislative level than any time since the late 1970s. When the economy slows, as it inevitably will, tuition increases once again by default will become the primary backup revenue source. Institutions will then be back in the budget position they were in the late 1980s, with a low tuition base and the declining role of public revenues.

Recommendations for Institutions and States

It is not inevitable that tuitions must continue to increase as they have in the past. Steps can be taken to ensure that college remains affordable, and to stabilize funding to protect access and quality for future generations that is at least equivalent to what it has been in the past. But to do that, steps have to be taken to change the political and policy context within which tuition decisions are made—both within the institutions and at the state policy level. In the final analysis, the tuition puzzle is also a political and policy puzzle, caused by the gradual disinvestment in higher education as a public good, and exaggerated by the culture and spending habits within higher education. Solving the puzzle requires multi-pronged strategies that address both the internal habits of the academy and the external political culture surrounding it. Such efforts will require new kinds of advocacy from higher education, including not just better public relations but evidence that resources that are invested in the academy are used in a manner consistent with public priorities. It will also require attention to the public policies surrounding higher education finance, and the consequences of an increasingly privatized system of finance on educational opportunity and quality for future generations.

RECOMMENDATIONS FOR STATES

The single pressure point most likely to be helpful in addressing rising prices is changed tuition policies at the state level, which are designed to address both the internal practices of higher education and the state political and budget environment in which tuition decisions are made. Specific suggestions include:

- State budget practices and tuition policies need to be rewritten, to be realistic and mutually reinforcing. In states where tuitions are increasing rapidly but are still characterized by policymakers as low, this pretense should be scrapped in favor of realistic price structures that permit moderate increases but keep college affordable. Policies should be set so that tuitions increase at rates no greater than per capita personal income

annually. State leaders also should support institutional efforts to control prices through state budget policies that encourage such efforts.

- State policy leaders should examine the match between public subsidies and private resources across all of higher education to ensure that state funds are being spent consistently with public priorities. Evidence about how resources are spent by revenue source and budget category should be developed for all public institutions, and for state-supported student aid at private institutions. The basic structure of prices for all three public sectors should be reevaluated using cost and revenue data, and restructured when necessary to ensure that the student share of costs is highest at the graduate and professional levels, and lowest at lower division levels.

- The role of financial aid in maintaining economic access to higher education should be protected through a reevaluation and (if necessary) a realignment of state aid programs, including policies about funding sources for institutional aid in the public sector. The realignment of student aid should also include a fresh look at the relation between public and private sector prices, and goals should be set for the ideal tuition "gap" that should be permitted in order to encourage choice as well as access.

- State policy leaders should set the goal that higher education's share of general revenues will not continue to decline, unless there is evidence that the continued investment in higher education is no longer a priority.

RECOMMENDATIONS FOR INSTITUTIONS

Institutions of higher education, both public and private, must take steps to address rising tuitions and restore public and policymaker confidence. Specific suggestions to accomplish these objectives include:

- The role of tuition revenue in institutional planning and budgeting must be changed. Rather than building the budgets by first developing resource needs for access and quality, and then generating revenue to match, institutions should move away from cost-plus pricing to value-based pricing. Tuition limits should be set first, and then plans for raising revenue from other sources and for institutional needs should follow.

- Price structures should be reviewed and, if necessary, realigned. Greater differentiation among prices by level of instruction and program should be permitted. Higher tuitions at the graduate and professional levels, in particular, should be encouraged, and/or costs for these programs reduced, to protect public subsidies for undergraduate education.

- Instruction should be protected at the same time that costs are cut and productivity increased. Attention to the quality of teaching and learning must be maintained as a priority. Analyses and action plans should be undertaken to ensure that lower rates of growth in spending for instruction relative to other spending categories do not contribute to lower quality or effectiveness. Plans for cost savings in some areas should be accompanied by plans to reinvest in other priorities.

- Academic and program planning must be integrated with long-term resource planning, and not maintained as essentially separate efforts within the institutions. Institutions need to develop realistic projections of long-term enrollments matched to scenarios of what can be accomplished at different revenue levels, and then make difficult decisions about focus, program, and priority. Faculty need to be better informed about the costs of programs, and the consequences of choices about future priorities.

- Institutions must take responsibility for strengthening their capacity to define the terms of public accountability that they are prepared to meet.

Suggestions for Future Research

The analyses in this report suggest that there is a complex array of explanations, causes, and consequences of rising tuitions which are unlikely to be changed through existing policy structures or by the market. The consequences of this tuition puzzle are greater economic and sectoral stratification within higher education, combined with the continued erosion of public and political support for higher education.

While more successful policy models might be found to turn the price spiral around, this is unlikely to happen until greater consensus develops about the size, cause, and long-term consequences of rising college tuition. At the moment, this consensus frankly does not exist. To the

contrary, the unspoken acknowledgment seems to be that it is inevitable that tuition will increase, and that higher prices can be accommodated without fundamentally hurting the purposes or quality of higher education. The inferences we have drawn from these analyses suggest that this view is basically incorrect—the problem has long-term consequences that potentially are extremely harmful to the purposes of higher education. However, the connections we have drawn between problem, cause, consequence, and solution clearly need further exploration. Additional attention needs to be paid in particular to the implications of this analysis for future policy interventions, at the national/federal levels as well as by states and institutions. The consequences of these trends on educational quality need more careful study and attention.

The following areas are the highest priorities for more research:

1) **Price elasticity.** Most of the research on student price response is more than 20 years old. The current recruitment environment enables students to get better information about college prices than was generally the case in the late 1970s, and there are more funding options available. New research is needed about how students in the current environment react to prices and aid, by income level and sector.

2) **The role of prepaid tuition and college saving plans.** Prepaid tuition and college saving plans are spreading, but little is known about how they will affect college-going decisions and prices. More and more families are using these plans. As these individuals show up ready to be enrolled, the guarantee provided by states could create a financial liability that they are unable to meet. This could result in higher prices in some cases. Further, because of the enrollment limitations placed on students participating in most plans, student choice about where to go to college also could be affected.

3) **Matching resources with quality.** There has been a good deal of attention to strengthening institutional effectiveness through assessment of student learning outcomes. The accountability agenda now in place in many states emphasizes "outcomes" and student learning. Yet the relationship of resources to quality—not as a substitute measure, but as a legitimate dimension of quality—appears to have evaporated from the assessment agenda. Measurement of costs as one element of institutional assessment has to be put squarely back on the assessment and accountability agenda.

4) **Measurement of costs.** Despite the fact that many states have policies based in part on internal costs, there is relatively little attention to cost measurement, and to public clarity about cost and subsidy patterns within institutions and across sectors. The issue of cost measurement becomes particularly murky when applied to graduate education, where the question of how to account for both direct and indirect research costs is challenging methodologically and politically. For these reasons, national data on the relative cost of graduate education in contrast to undergraduate education is extremely hard to obtain.

   The problem of cost measurement is not primarily a methodological one. Costing methodologies exist that would allow institutions to measure costs while maintaining flexibility in institutional decisions about how to apply the methodology. But the culture of the academy has been to resist cost measurement and to portray public communication about costs as both technically impossible and politically dangerous. Attention needs to be paid to new approaches to cost measurement, not just from the business and finance community, but from the academic side of the institution. As one part of this, analysis of costs and subsidies should be made part of the assessment agenda within the academy.

5) **The role of colleges in the higher education continuum.** One of the most disturbing conclusions of this research is that the pricing and subsidy patterns may be pushing students toward research institutions on one hand and community colleges on the other. The evidence shows that there has been an incremental shift away from community colleges by middle- and upper-income students and toward research institutions by the richest students. Low-income students—who are more "price responsive"—have largely remained concentrated in public two- and four-year institutions. The enrollment shifts mean that higher education is at risk of becoming more economically stratified by sector at the end of the 1990s than any time in the previous two decades. Without denigrating the quality or capacity of either of these sectors, the ero-

sion of the middle—traditional baccalaureate level education—may have serious negative consequences for higher education. Much more needs to be known about what is happening, and why.

6) **The role of distance learning.** The research that has been conducted to date is overwhelmingly focused on conventional higher education; the emerging role of proprietary institutions, as well as of distance-delivered higher education, have not yet been integrated into the research literature. It is possible that the analysis of the whole puzzle might change slightly if those additional pieces were better understood. The extent to which distance learning can provide access at lower cost and comparable quality is particularly important to understand.

References

American Council on Education (ACE). 1998a. *Research on Public Perceptions of College Costs and Student Aid.* Washington, DC: ACE.

_____. 1998b. "College is Possible: Myths and Realities About Paying for College." From the College is Possible website (www.collegeispossible.org).

Burd, Stephen. 1998. "Riley Urges Colleges Not to Raise Tuition or Lower Aid in Response to Tax Credits." *Chronicle of Higher Education.* December 18.

California Postsecondary Education Commission (CPEC). 1990. *Technical Background Papers.* Prepared for the *Higher Education at the Crossroads* report. Sacramento, CA: CPEC.

Carnegie Commission on Higher Education. 1973. *Higher Education: Who Pays? Who Benefits? Who Should Pay?* New York, NY: McGraw Hill.

CPEC. See: California Postsecondary Education Commission.

Davis, Jerry. 1997. *College Affordability: A Closer Look at the Crisis.* Washington, DC: Sallie Mae Education Institute.

Education Commission of the States (ECS). 1998. *Survey of Perceptions of State Leaders.* Denver, CO: ECS.

Fischer, Fred. 1990. "State Financing of Higher Education: A New Look at an Old Problem." *Change.* January/February.

GAO. See: U.S. General Accounting Office.

Hansen, W. and B. Weisbrod, 1969. *Benefits, Costs, and Finance of Public Higher Education.* Chicago: Markham Publishing Company.

Hauptman, Arthur, and Cathy Krop. 1998. ."Federal Student Aid and the Growth in College Costs and Tuitions: Examining the Relationship." In National Commission on the Cost of Higher Education, 1998, pp. 70-83.

Heller, Donald E. 1997. "Student Price Response in Higher Education: An Update to Leslie and Brinkman." *The Journal of Higher Education.* Vol. 68, No. 6 (Nov./Dec.), pp. 624-659.

Immerwahr, John. 1993. *The Closing Gateway: Californians Consider Their Higher Education System.* With John Farkas. San Jose, CA: The Public Agenda Foundation and the California Higher Education Policy Center.

_____. 1998. *The Price of Admission: The Growing Importance of Higher Education: A National Survey of Americans' Views.* San Jose, CA: The National Center for Public Policy and Higher Education, Spring.

Johnstone, D. Bruce. 1993. *Learning Productivity: A New Imperative for American Higher Education.* Albany, NY: State University of New York (SUNY).

Johnstone, D. Bruce and Patricia Maloney. 1998. "Enhancing the Productivity of Learning: Curricular Implications." In Groccia and Miller, eds. *Productivity in Higher Education.* San Francisco, CA: Jossey Bass.

Lenth, Charles S. 1993. *The Tuition Dilemma: State Policies and Practices in Pricing Public Higher Education.* Denver, CO: The State Higher Education Executive Officers (SHEEO), December.

Massy, William F. 1997. "Remarks on Restructuring Higher Education." In National Commission on the Cost of Higher Education, 1998, pp. 84-91.

McDonald, Sheila. 1995. *Tuition Payment Plans. The Dilemma for Colleges and Universities: Internal vs. External Administration.* Newport, RI: Tuition Management Systems, Inc.

McPherson, Michael and Morton Schapiro. 1998. *The Student Aid Game.* Princeton, NJ: Princeton University Press.

Minnesota Higher Education Coordinating Board. 1994. *The Design for Shared Responsibility and the Result of Its Implementation.* Minneapolis, MN: Minnesota Higher Education Coordinating Board.

National Association of College and University Business Officers (NACUBO). 1997. "Payment and Pricing Practices, Results of a National Survey." From the NACUBO website (www.nacubo.org).

National Association of State Budget Officers (NASBO). 1998. *1997 State Expenditure Report: Executive Summary.* Washington, DC: NASBO, May.

National Commission on the Cost of Higher Education. 1998. *Straight Talk About College Costs and Prices*. Phoenix, AZ: Oryx Press.

NCES. See: U.S. Department of Education. National Center for Education Statistics.

Olivas, Michael. 1993. *Prepaid College Tuition Plans: Promises and Problems*. New York: The College Board.

Roherty, Brian. 1997. "The Price of Passive Resistance in Financing Higher Education." In Callan and Finney, eds. *Public and Private Financing of Higher Education: Shaping Public Policy for the Future*. Phoenix, AZ: Oryx Press.

U.S. Bureau of the Census. 1997a. "Selected Per Capita Income and Product Items in Current and Real (1992) Dollars." Table No. 722. *Statistical Abstract of the United States*. From the Census website (www.census.gov/statab/freq/98s0722.txt).

_____. 1997b. "Table F-3: Mean Income Received by Each Fifth and Top Five Percent of Families: 1966 to 1997." *Current Population Survey* data. From the Census website (www.census.gov/hhes/income/histinc/f03.html).

_____. 1998. "Table F-3: Mean Earnings of Workers 18 Years Old and Over, By Educational Attainment, By Race, Hispanic Origin, and Gender: 1975 to 1997." *Current Population Survey* data. From the Census website (www.census.gov).

U.S. Bureau of Labor Statistics (BLS). 1997. "College Enrollment and Work Activity of 1997 High School Graduates." Supplement to *Current Population Survey*, 1997. From the BLS website (www.bls.gov).

U.S. Department of Education. National Center for Education Statistics (NCES). 1990. National Postsecondary Student Aid Study, 1990 (NPSAS: 90). Data Analysis System.

_____. 1996. National Postsecondary Student Aid Study, 1996 (NPSAS: 96). Data Analysis System.

_____. 1997. *Digest of Education Statistics*. Washington, DC: U.S. Government Printing Office.

_____. 1998. *The Condition of Education*. Washington, DC: U.S. Government Printing Office.

U.S. General Accounting Office (GAO). 1998. *Tuition Increases and Colleges' Efforts to Contain Costs*. HEHS-98-227. Washington, DC: U.S. Government Printing Office.

Washington Higher Education Coordinating Board. 1998. *A National Comparison: Tuition and Required Fees*. Olympia, WA: Washington Higher Education Coordinating Board.

Wingspread Group on Higher Education. 1993. *An American Imperative: Higher Expectations for Higher Education. An Open Letter to Those Concerned about the American Future*. Racine, WI: The Wingspread Group.

Zemsky, Robert and William Massy. 1990. "The Lattice and the Ratchet." *Policy Perspectives*. (A publication of the Pew Higher Education Research Program, Philadelphia, PA). Vol. 2, No. 4 (June).

Zucker, Brian. 1998. "The Hope Tax Credit and Implications for Tuition and Financial Aid." Unpublished memo prepared for the University of North Carolina General Administration. Chapel Hill, NC.